



## **Perinatal Epidemiology Report 2022**

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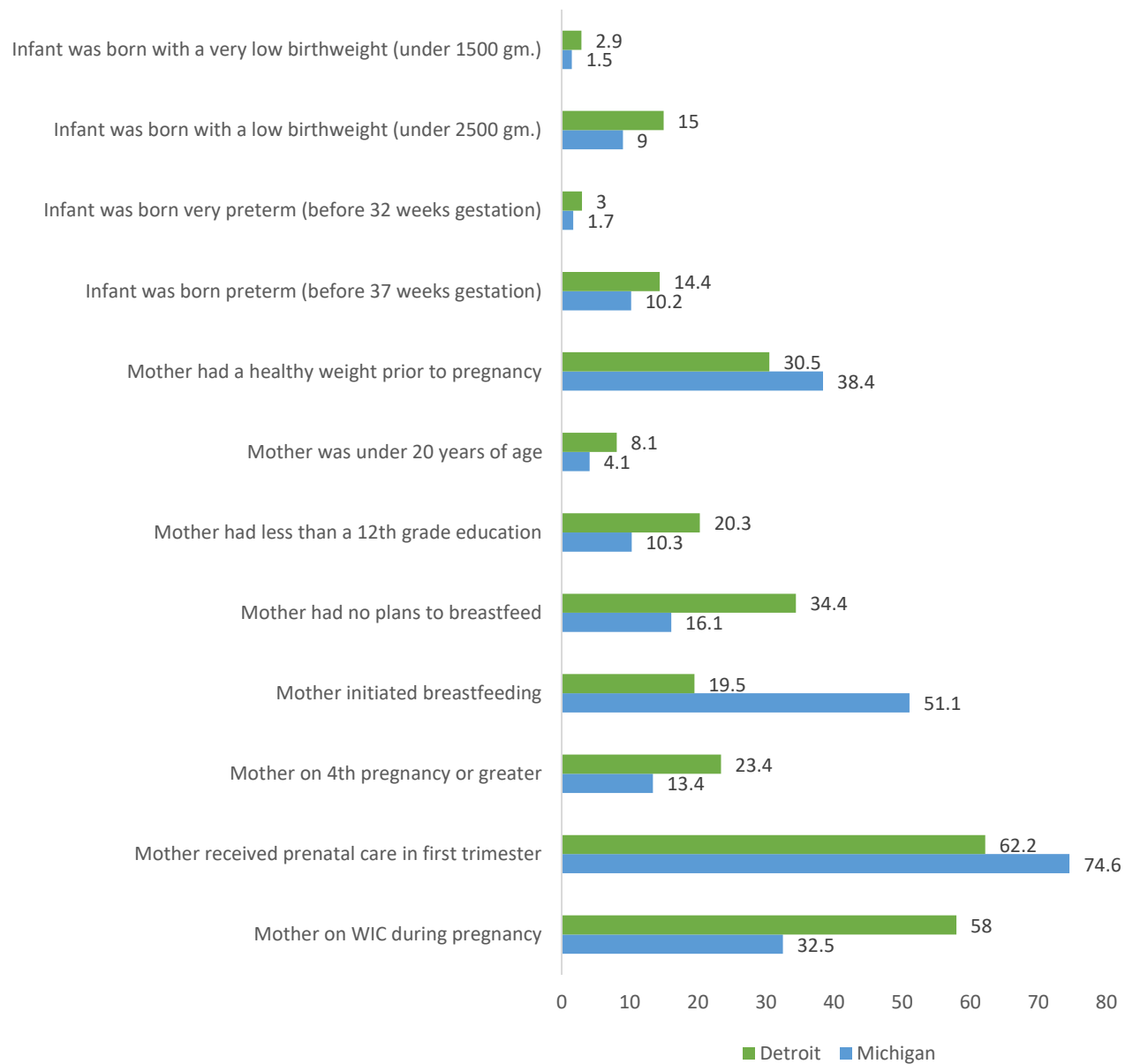
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## Summary

- Across the last 7 years, Detroit saw the most infant deaths in 2017, with an infant death rate of 16.7 per 1,000 live births.
- Among Black females of all ages in Michigan, the leading causes of death were (in descending order): disease of the heart and blood vessels, heart disease, cancerous tumors, a condition in which the heart cannot correctly pump blood causing it to be too weak to get enough oxygen, and COVID-19 (2020).
- The most common chronic health risk among pregnant Detroit women in 2020 was infection.
- The three-year moving average infant death rate for Detroit was more than twice (14.1 per 1,000 live births) than Michigan's average (6.6 per 1,000 live births) (2018 to 2020).
- The percentage of new mothers under the age of 20 was 8.1% in Detroit in 2020. This same statistic was 4.1% in Michigan.
- In 2020, the percentage of Detroit mothers with four or more pregnancies was 23.4%. In Michigan, the percentage was 13.4%.
- In 2020, the percentage of mothers with less than 12 years of education was 20.3% in Detroit. In Michigan, the percentage was 10.3%.
- In 2020, the percentage of Detroit mothers who were not married was 78.9%. The percentage of unmarried mothers in Michigan was 41.6%.
- In Michigan in 2020, Black women were 5.9% more likely to have inadequate prenatal care than non-Hispanic White women.
- Chlamydia, gonorrhea, and syphilis were all reported at higher rates in Detroit than Michigan overall in 2020.
- The percentage of mothers who initiated breastfeeding in 2020 was 32.4% lower in Detroit than Michigan.
- The percentage of infants with a low birthweight (< 2500 gm) was 6% higher in Detroit than Michigan (2020).
- The percentage of very low birthweight infants (<1500 gm) was 1.4% higher in Detroit than Michigan (2020).
- The teen birth rate in 2020 was 24.2 per 1,000 live births for Michigan, compared to 65.9 per 1,000 live births in Detroit.

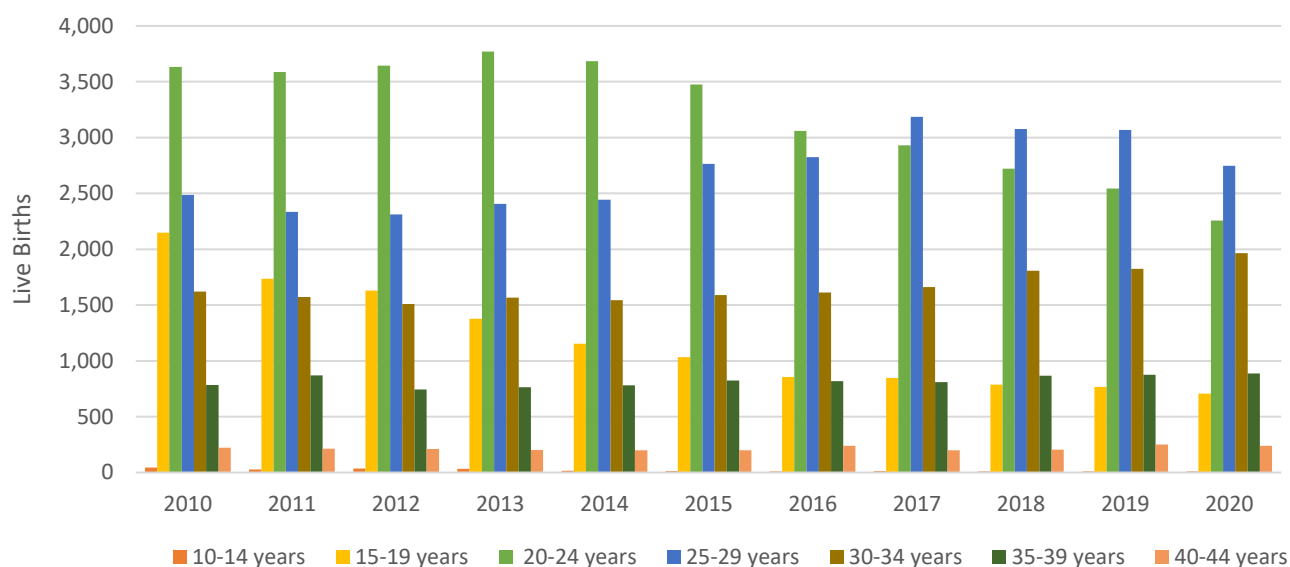
## Detroit Birth Data

**Figure 1. Characteristics of mother and infant as a percentage of live births in Detroit and Michigan, 2020.**



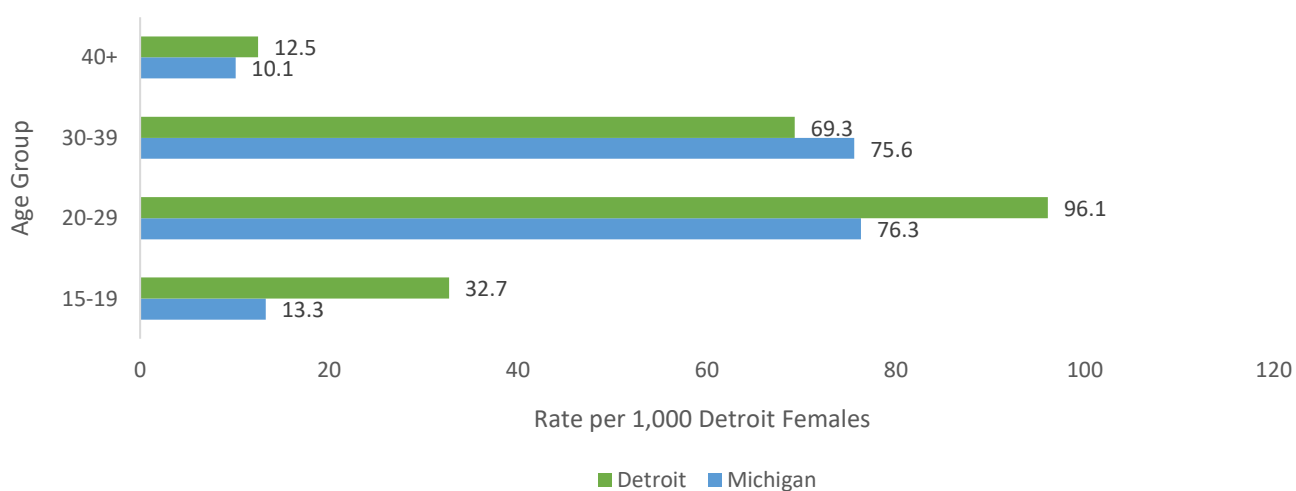
*Michigan Resident Birth Files, Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services*

**Figure 2. Live births by age of mother, Detroit, 2010-2020.**



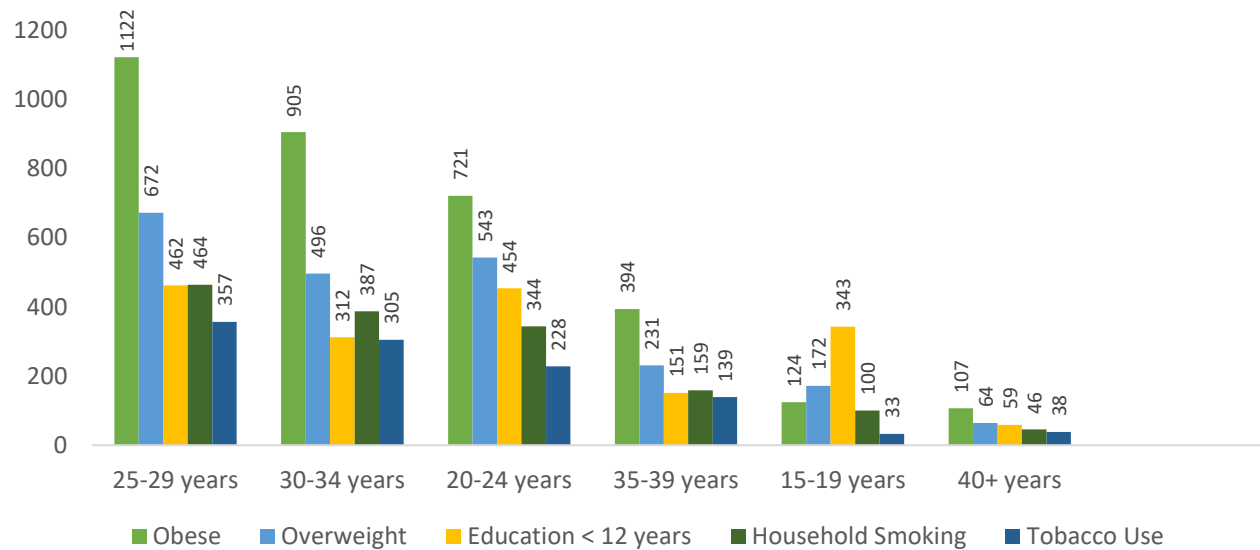
*Michigan Resident Birth Files, Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services*

**Figure 3. Birth rates by age of mother, Detroit, Michigan, 2020.**



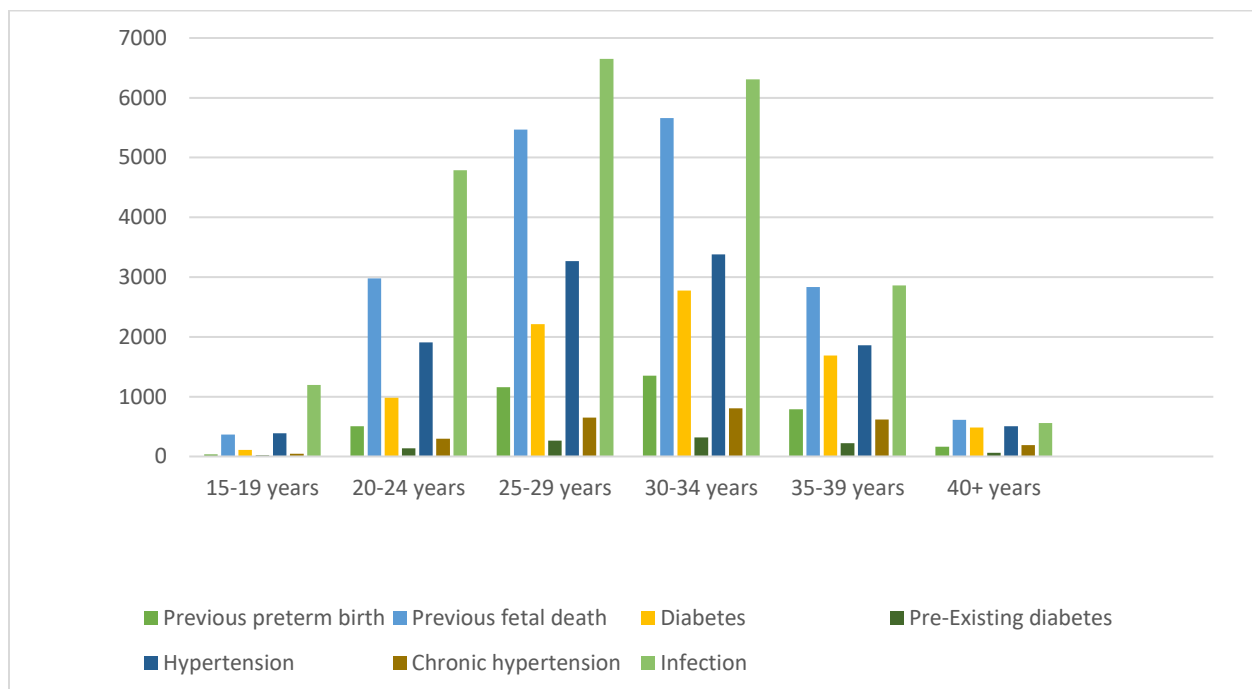
*Michigan Department of Health & Human Services, the National Center for Health Statistics (NCHS), CDC*

**Figure 4. Number of live births by age of mother and environmental health indicators for Detroit, 2020.**



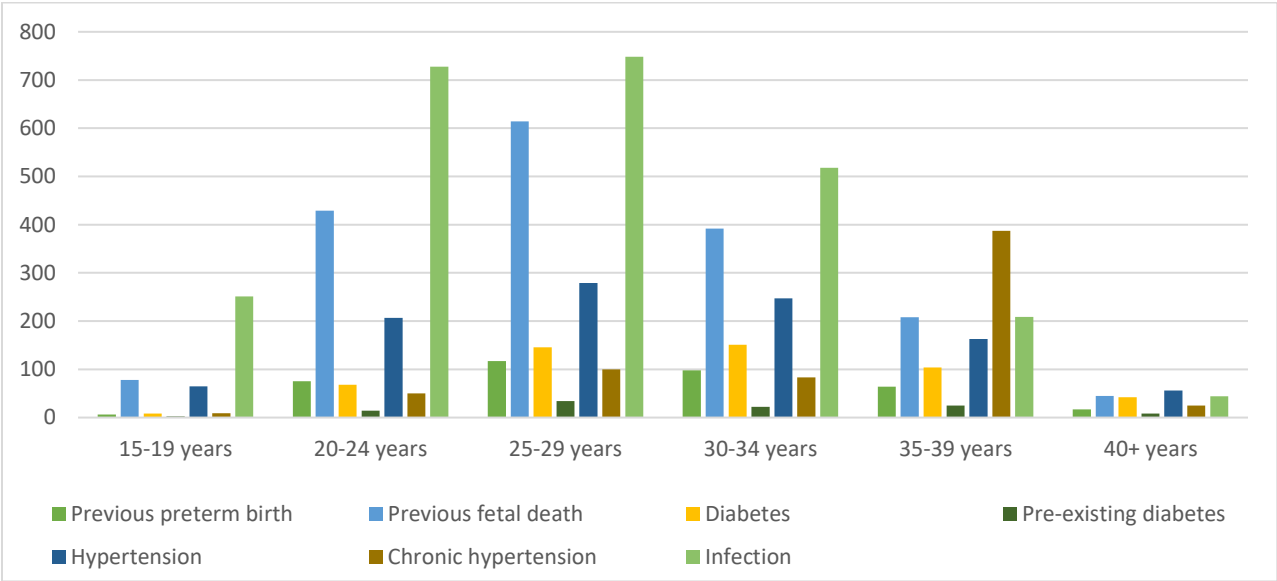
Michigan Disease Surveillance System, Michigan Department of Health & Human Services

**Figure 5. Number of live births by age of mother, and comorbidities for Michigan, 2020.**



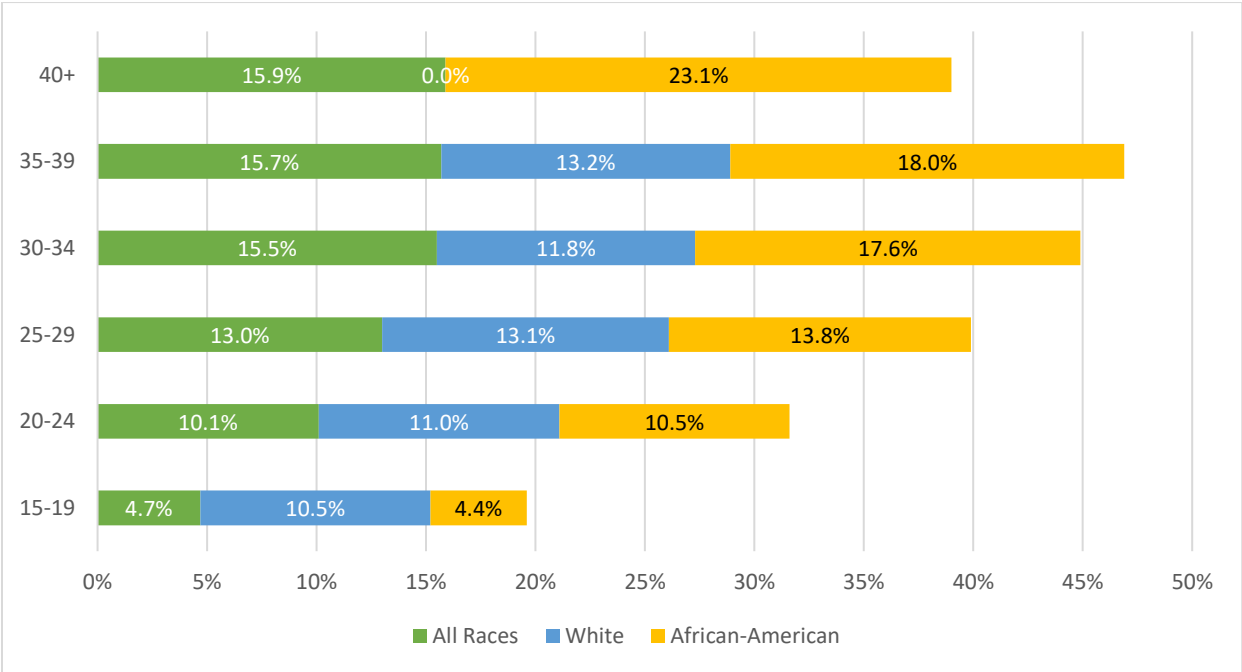
Michigan Disease Surveillance System, MDHHS

Figure 6. Number of live births by age of mother, and comorbidities for Detroit, 2020.



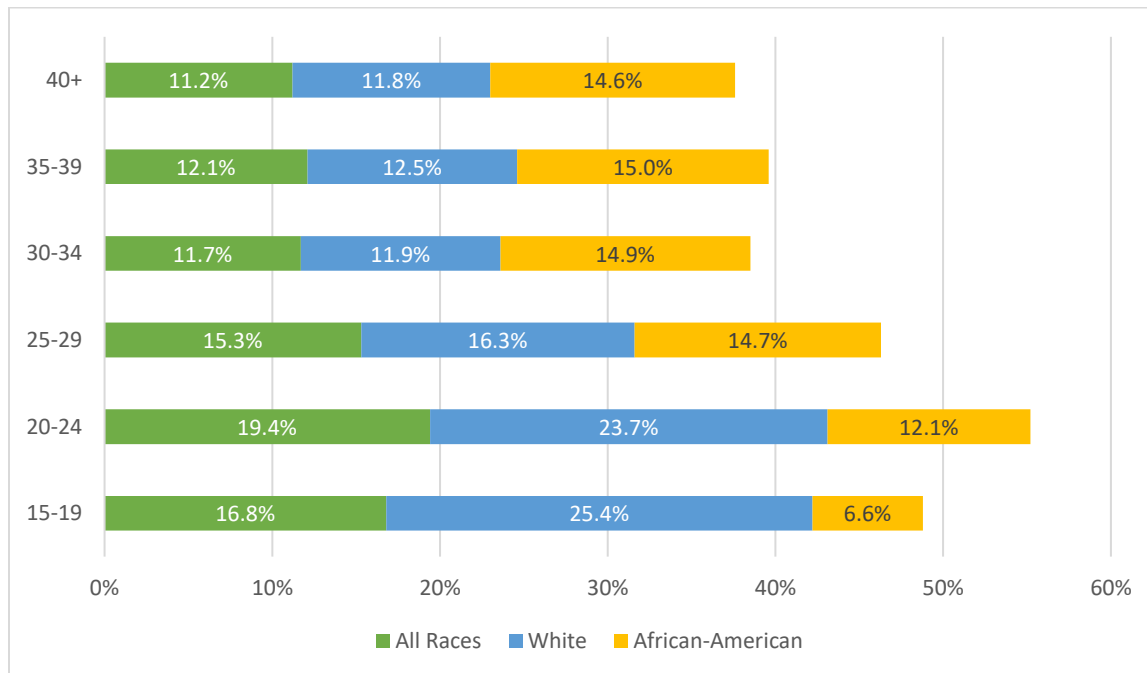
Michigan Department of Health and Human Services

Figure 7. Tobacco use during pregnancy by maternal age and race, Detroit, 2020.

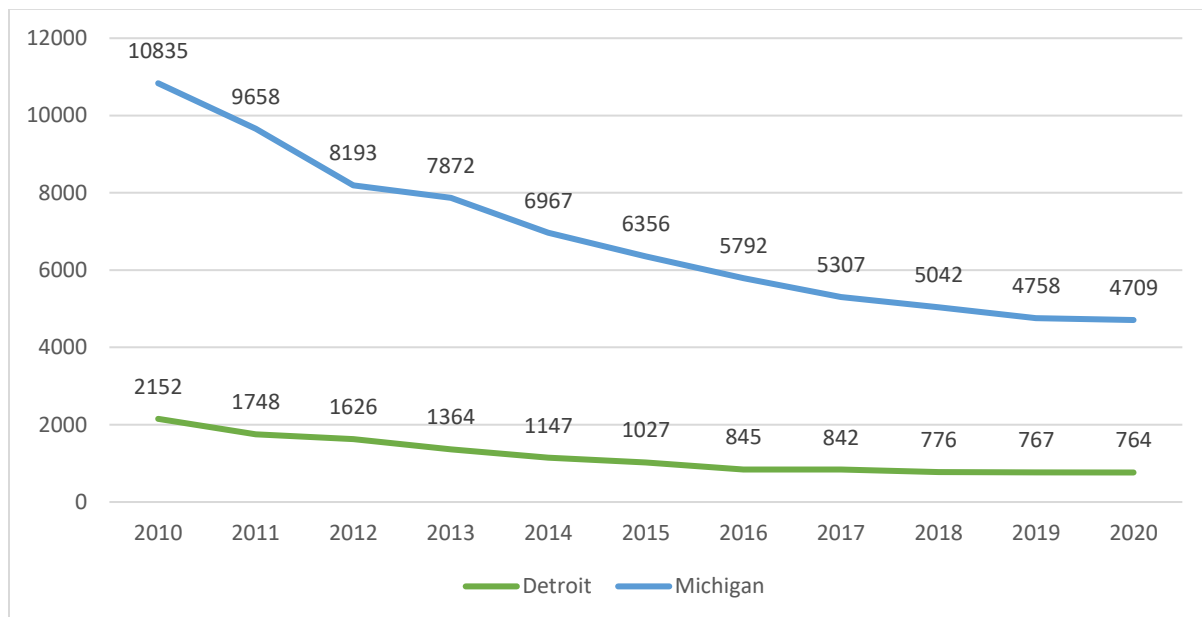


2020 Geocoded Michigan Birth Certificate Registry  
Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services

**Figure 8. Tobacco use during pregnancy by maternal age and race, Michigan, 2020.**



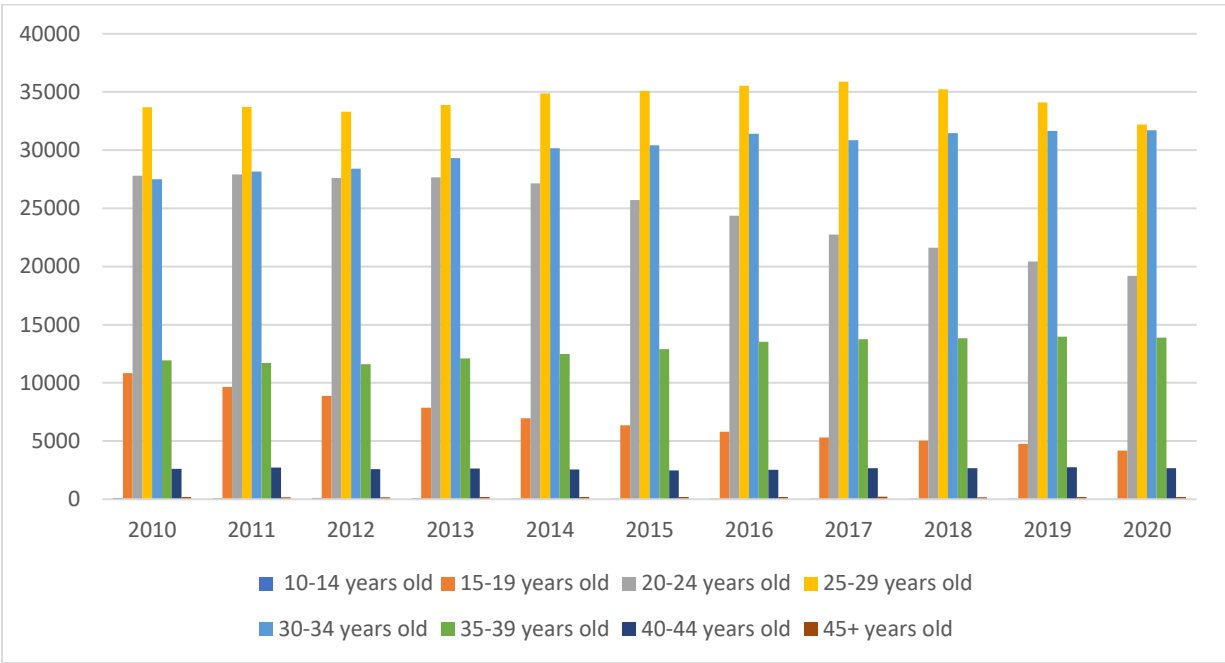
**Figure 9. Total Detroit births to teen mothers, by year, 2010-2020.**



*Source: datacenter.kidscount.org, 2022.*

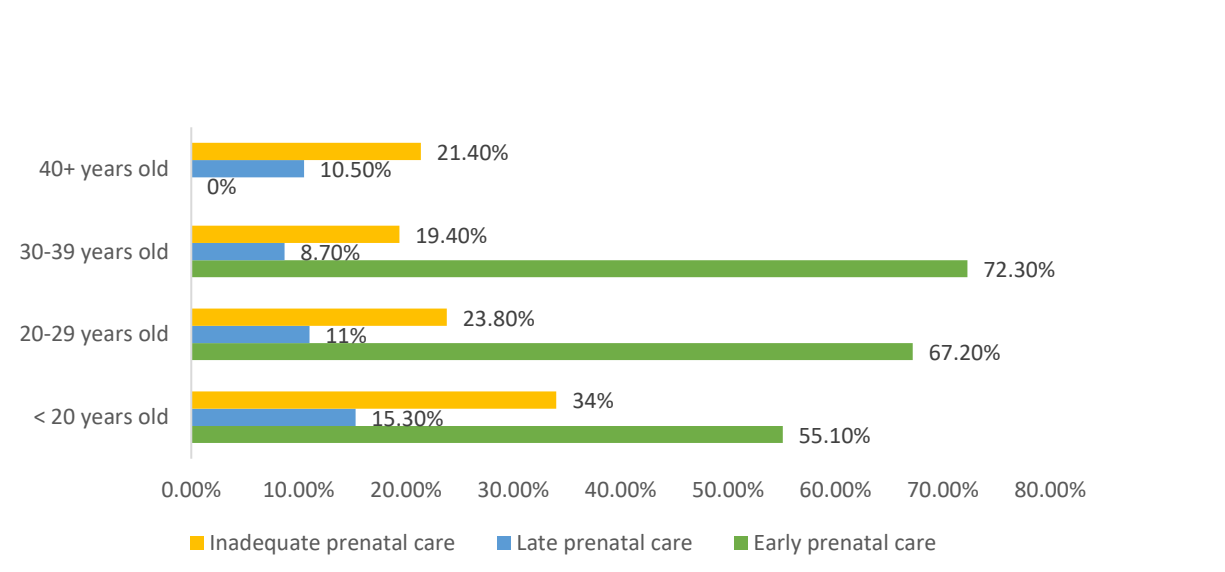


Figure 10. Michigan live births by maternal age and year, 2010-2020.



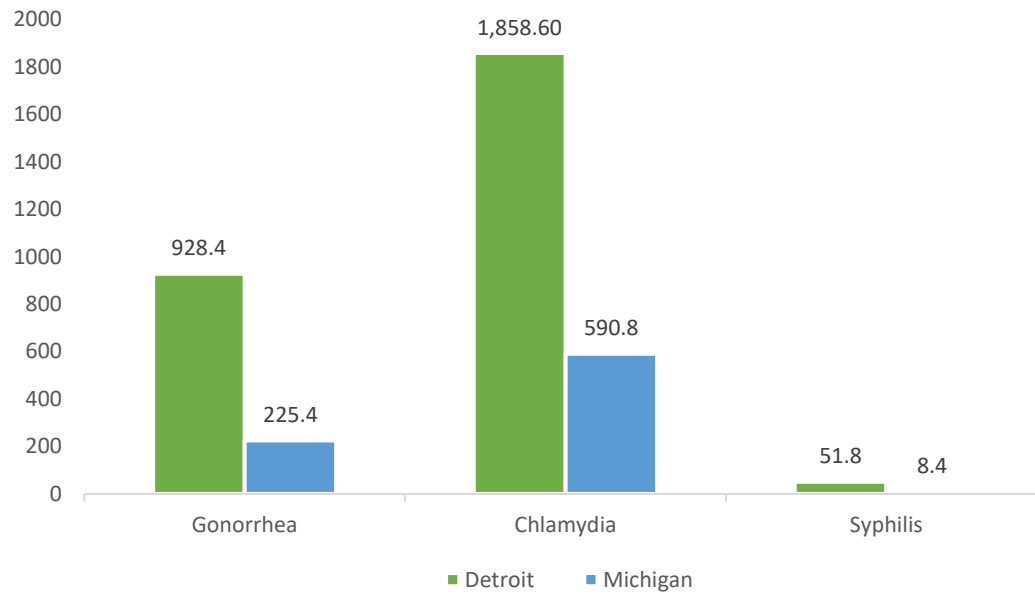
Michigan Department of Health and Human Services

Figure 11. Percentage of prenatal care types by maternal age, Detroit, 2020.



Michigan Department of Health and Human Services

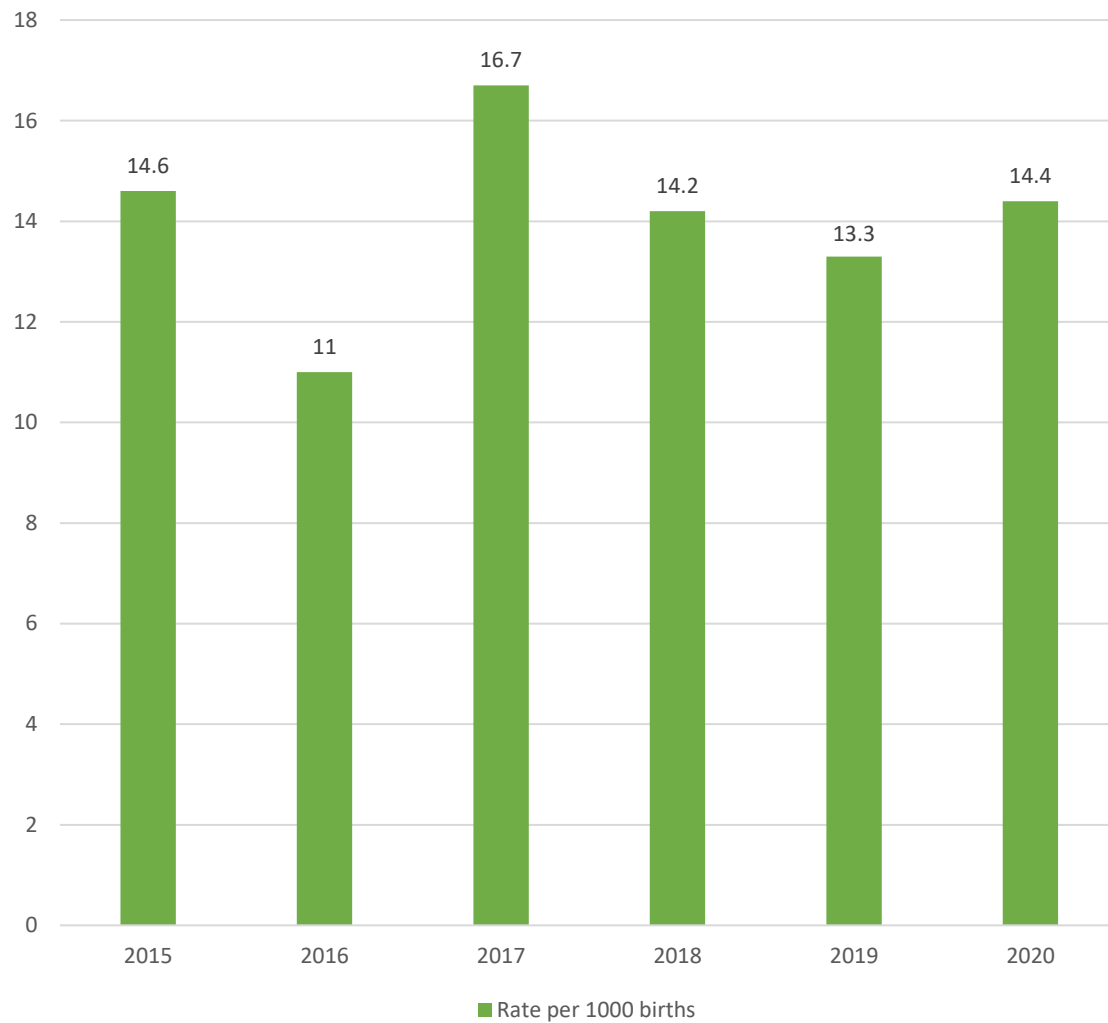
**Figure 12. STI case rate (per 100,000 individuals) for Michigan and Detroit women, 2020.**



*Michigan Department of Health and Human Services*

## Detroit Infant/Fetal Deaths

**Figure 13. Rate of Detroit infant (0-12 months) deaths, by year.**

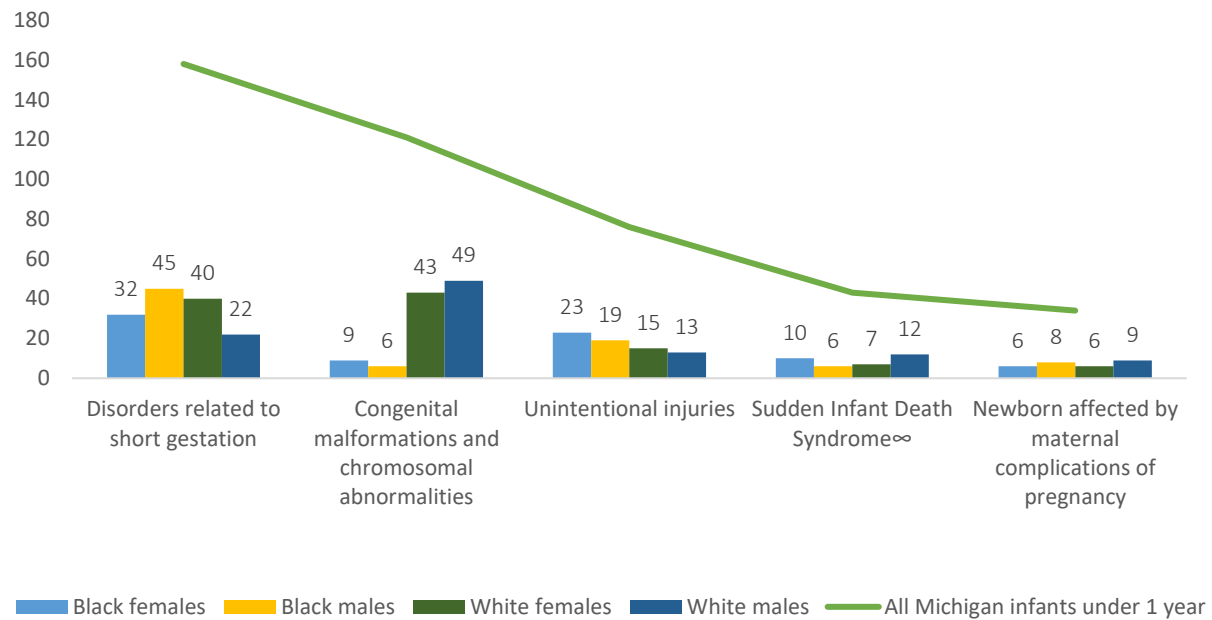


2020 Michigan Resident Death File, Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services; Population Estimate (latest update 7/2020), National Center for Health Statistics, [U.S. Census Populations with Bridged Race Categories](#)

**Infant Deaths:** Deaths occurring among individuals less than 1 year of age.

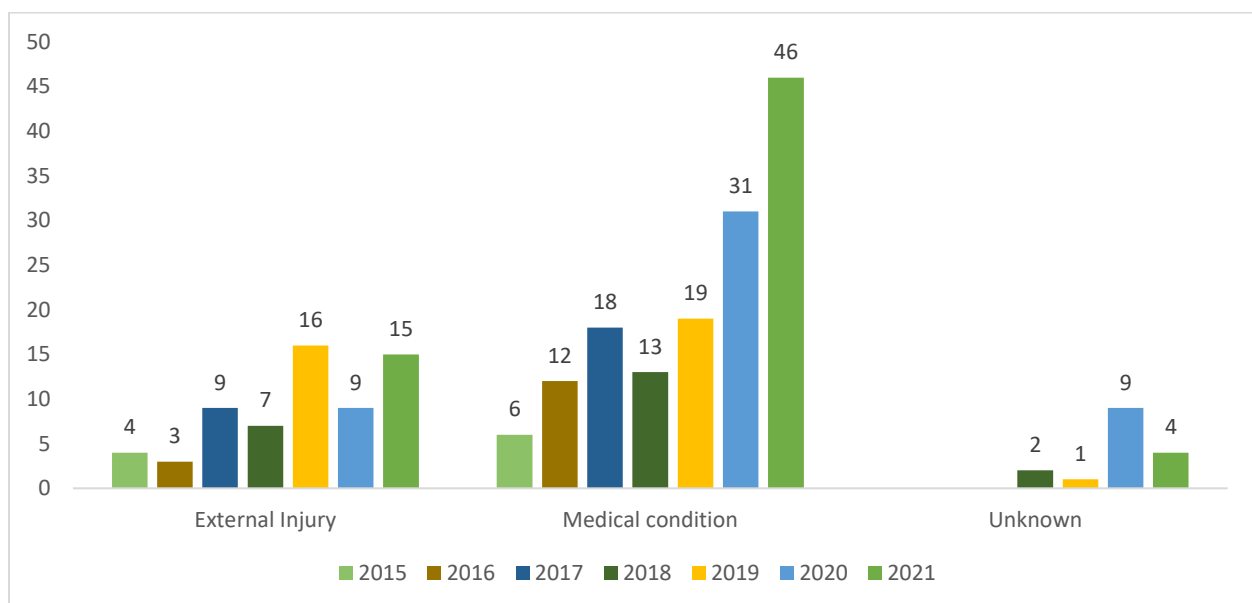
**Infant Death Rates:** Number of resident infant deaths divided by total resident live births  $\times$  1,000

**Figure 14. Leading causes of death for Michigan infants (< 1 year), by sex and race, 2020.**



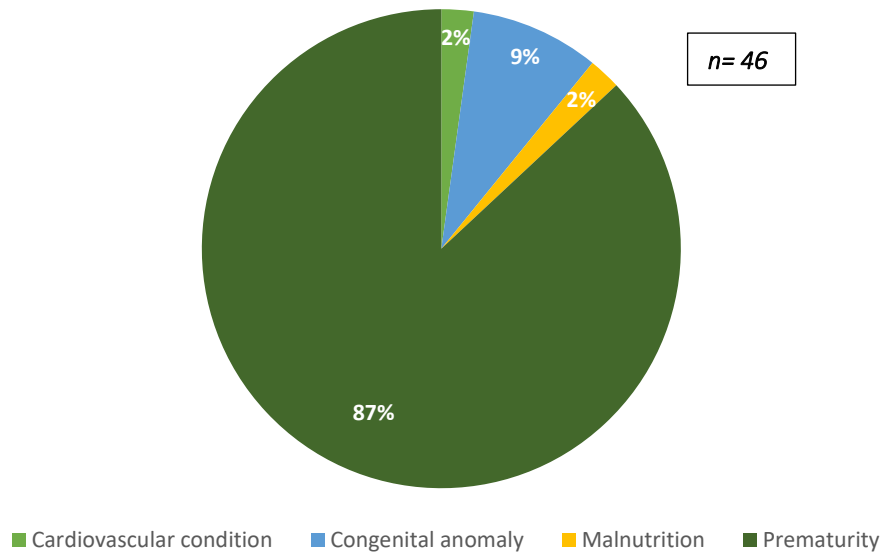
2020 Michigan Resident Death File, Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services; Population Estimate (latest update 7/2020), National Center for Health Statistics, [U.S. Census Populations with Bridged Race Categories](#)  
 ~Unintentional injuries include accidents and adverse events and are separate from Sudden Infant Death Syndrome (SIDS) and Sudden Unexplained Infant Death (SUID).

**Figure 15. Detroit infant/fetal causes of death, by year, 2015-2021.**



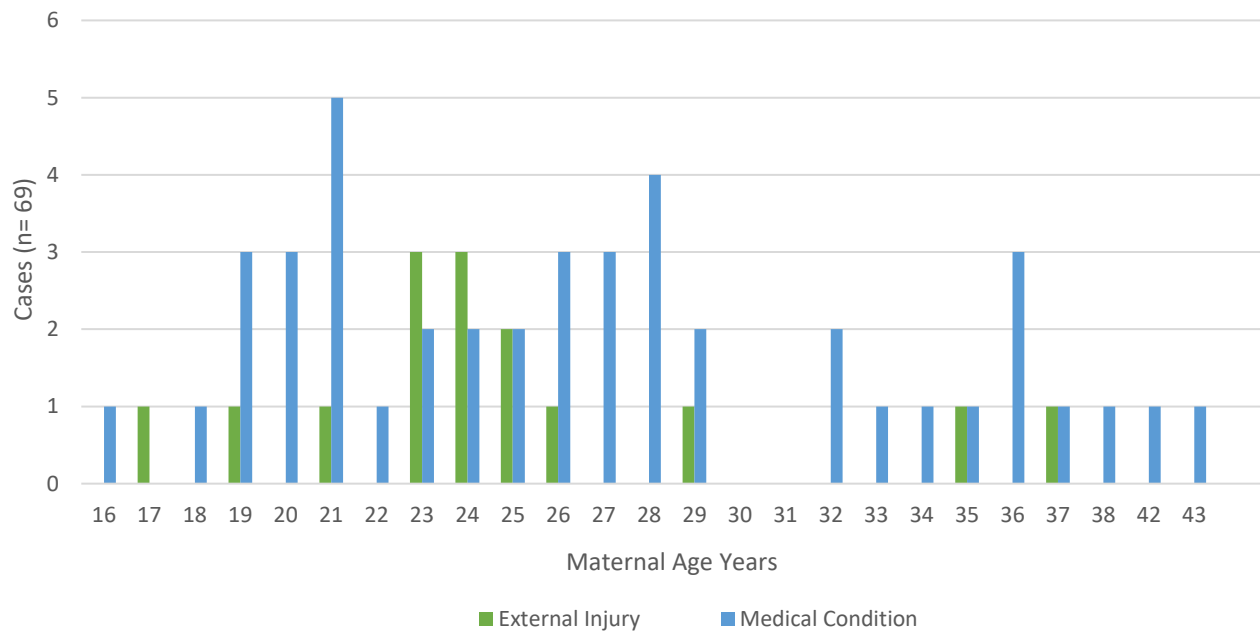
National Fatality Review Case Reporting System, <https://data.ncfrp.org/>, 2021

**Figure 16. Detroit infant (< 1 year) deaths by medical category, 2021.**



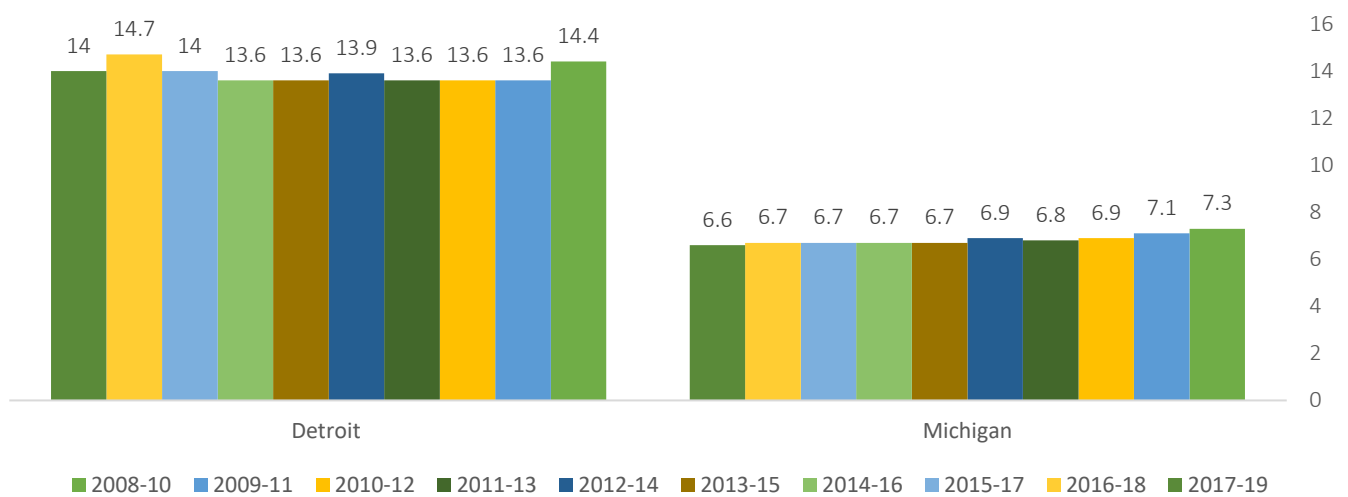
National Fatality Review Case Reporting System, <https://data.ncfrp.org/>, 2021

**Figure 17. Fetal causes of death, by maternal age, Detroit, 2021.**



National Fatality Review Case Reporting System, 2021

**Figure 18. Three-year moving average of infant death rate\* for Michigan and Detroit, 2008-2019.**



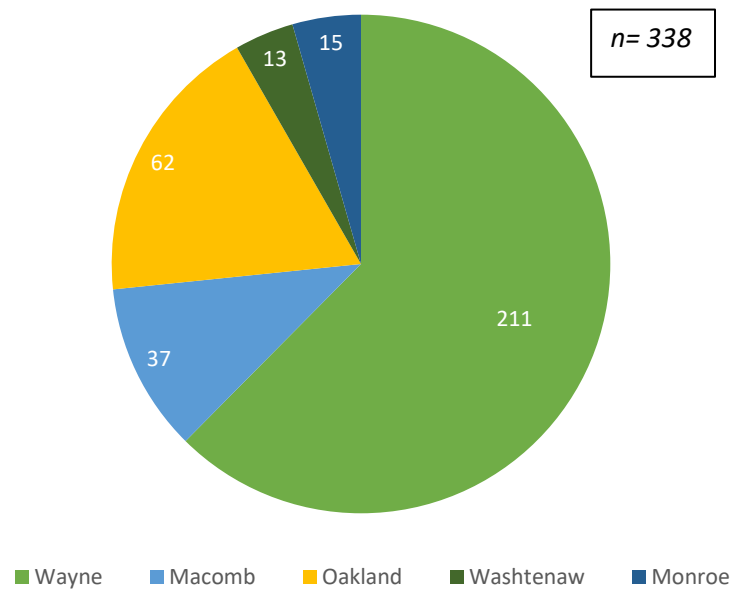
2008-2019 Geocoded Michigan Death Certificate Registries; 2019 Michigan Death Certificate Registry. 2008-2019 Geocoded Michigan Birth Certificate Registries. Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services  
 \*Rates are per 1,000 live births.

**Table 1. Number of infant deaths, live births, and death rate in Wayne County, adjacent counties, and the state of Michigan, 2020.**

	Infant deaths	Live births	Infant death rate
Michigan	701	102,680	6.8
Wayne	211	21,680	9.7
Macomb	37	8,526	4.3
Monroe	15	1,267	11.8
Oakland	62	12,159	5.1
Washtenaw	13	3,065	4.2

\*Rates are per 1,000 live births,  
 \*\*Based on infant deaths reported as of April 23, 2021. Births reported as of April 14, 2021, Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services.

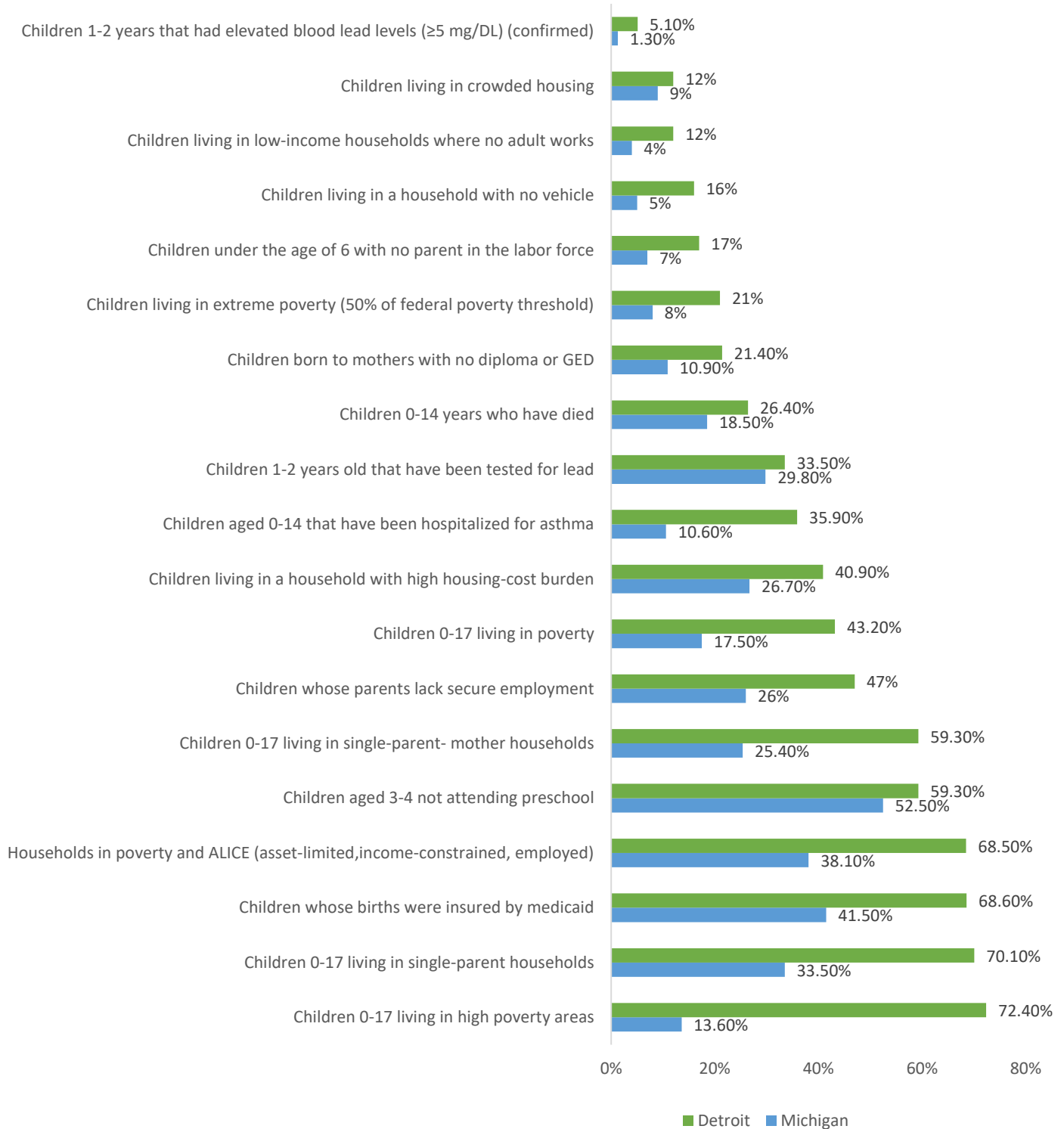
**Figure 19. Number of infant deaths in Wayne County and adjacent counties, 2020.**



*Health Statistics, Michigan Department of Health and Human Services*

## Adversity

**Figure 20. Adversity Indicators for Detroit and Michigan, 2019.**



Source: datacenter.kidscount.org, 2022



## Structural Determinants of Health

**Table 2. Determinants of health in minors, Detroit, 2019.**

Determinant	Count	
	Detroit	MI
Head of household has not completed high school	33,000	175,000
Head of household highest, education attainment - high school diploma/GED	100,000	982,000
Head of household, highest educational attainment - Associate (2-year) degree	13,000	214,000
Head of household, highest educational attainment - Bachelor's (4-year) degree	13,000	461,000
Children without a vehicle in the household	27,000	97,000
Children living in poverty	71,000	371,000
Children living in a household with a high-housing cost burden	66,000	519,000

*Source: datacenter. kidscount.org, 2022.*

## Discussion

The importance of understanding structural determinants of health as well as their relationship with attaining equitable health outcomes in Detroit cannot be understated. Detroit's demographics are significantly different from most Michigan municipalities and the state overall. As of 2022, Detroit's population consisted of 661,193 residents<sup>1</sup>.

Detroit has a relatively elevated rate of children born to mothers who did not complete high school, with 21.4% of Detroit's children coming from households in which the mother does not have a high school diploma or GED, compared to Michigan's rate of 10.9%. Mothers in Detroit are also more likely to be a single head of household than elsewhere in Michigan, with 59.3% of all Detroit children aged 0 to 17 coming from a household with a single mother (more than twice the rate of children living in single-mother households in Michigan). Single motherhood has been associated with lower household income, higher risk of poverty, and worse maternal mental health. Such factors may influence important childhood benchmarks, such as, completing vaccination schedules.<sup>2</sup>

Another factor that contributes to health inequity across Michigan is possessing the resources to enroll children in preschool. Attending preschool may assist in building a child's social competence, which can influence a child's development of cognitive, academic, and social-emotional abilities.<sup>3</sup> It is estimated that 59% of Detroit children 3 to 4 years old do not attend preschool, 6.8% more than all Michigan children. Detroit also has a relatively greater percentage of children that come from households with no vehicle. For the state of Michigan, this percentage is 5%, while the city of Detroit's is more than 3x higher, at 16%. Not having a vehicle may make it difficult for household members to find and maintain employment, receive adequate health care, and enable food security.<sup>4</sup>

Detroit experiences widespread financial adversity.<sup>5</sup> Lacking adequate income has left many Detroit children living in poverty. Greater than 42% of Detroit children live in poverty, a significant difference from the 17.5% in the state of Michigan overall. This disadvantaged economic start in life can have enduring health effects, with many Detroit families experiencing higher levels of stress than those who reside in other Michigan cities. There is an extensive body of evidence showing that stress can affect a child's behavior, academic and career prospects, and ability to avoid or manage disease. Detroit children are furthermore at a relatively elevated risk for asthma,<sup>6</sup> elevated blood lead levels (lead poisoning),<sup>7</sup> and conditions such as diabetes, and obesity.<sup>8</sup>

## Sources

<sup>1</sup>United States Census Bureau, <https://www.census.gov>

<sup>2</sup>Eze, P., Agu, U. J., Aniebo, C. L., Agu, S. A., Lawani, L. O., & Acharya, Y. (2021). Factors associated with incomplete immunisation in children aged 12–23 months at subnational level, Nigeria: a cross-sectional study. *BMJ open*, 11(6), e047445.

<sup>3</sup>Alwaely, S. A., Yousif, N. B. A., & Mikhaylov, A. (2021). Emotional development in preschoolers and socialization. *Early child development and care*, 191(16), 2484-2493.

<sup>4</sup>Sharpe, P. A., Liese, A. D., Bell, B. A., Wilcox, S., Hutto, B. E., & Stucker, J. (2018). Household food security and use of community food sources and food assistance programs among food shoppers in neighborhoods of low income and low food access. *Journal of hunger & environmental nutrition*, 13(4), 482-496.

<sup>5</sup>Teena Chopra, M. D., & Sobel, J. (2020). Detroit under siege, the enemy within: The impact of the COVID-19 collision. *Infection Control & Hospital Epidemiology*, 1.

<sup>6</sup>Dabaja, E., Beydoun, S., & Misra, A. (2020). Using Geo-Mapping Technologies to identify Asthma “Hot spots” in Detroit, MI. *Pediatrics*, 146(1\_MeetingAbstract), 18-19.

<sup>7</sup>Sorensen, L. C., Fox, A. M., Jung, H., & Martin, E. G. (2019). Lead exposure and academic achievement: Evidence from childhood lead poisoning prevention efforts. *Journal of Population Economics*, 32(1), 179-218.

<sup>8</sup>YMCA of Metropolitan Detroit (2015), The Y collaborates with CATCH to combat obesity and improve child health. <https://ymcadetroit.org/>.